REMARKS

Claims 1-15 and 17-57 are currently pending. No claims have been amended.

Rejection of the Claims Under 35 U.S.C. §103(a)

Reconsideration is requested of the rejection of claims 1-15, and 17-57 under 35 U.S.C. §103(a) as being unpatentable over Wu, et al. (WO 02/42365) [1] in view of Hale, et al. (U.S. 2003/0039851).

Claim 1 is directed to an absorbent article comprising a laminated outer cover, the laminated outer cover comprising a biodegradable stretched aliphatic-aromatic copolyester film. The film comprises filler particles, a polyfunctional branching agent, and a copolyester comprising from about 10 mole% to about 30 mole% of aromatic dicarboxylic acid or ester thereof, from about 20 mole% to about 40 mole% of aliphatic dicarboxylic acid or ester thereof, from about 30 mole% to about 60 mole% dihydric alcohol, and wherein the weight average molecular weight of the copolyester is from about 90,000 to about 160,000 Daltons, and wherein the number average molecular weight of the copolyester is from about 35,000 to about 70,000 Daltons, and wherein the glass transition temperature of the copolyester is less than about 0°C.

[1] Applicants note that page 3 of the current Office action states that claims 1-15 and 17-57 are rejected over Wu, et al. (WO 02/23465) in view of Hale, et al. However, WO 02/23465 is actually not Wu, but rather is Buescher, and is entitled Synchronizing Sample Timing in an RFID receiver. Applicants assume the Office intended to base the rejection of claims 1-15 and 17-57 on Wu (WO 02/42365), as listed in the Notice of References Cited.

Wu, et al. is directed to biodegradable films that are permeable to moisture vapor and air. The films have a moisture vapor transmission rate of from about 1000 to about 4500 $g/m^2/day$. The films comprise a blend of from about 40% to about 75% by weight of a biodegradable thermoplastic polymer and about 25% to about 60% by weight of inorganic filler particles. The film is stretched at ambient temperature to produce microvoids in the film. The filler particles may be calcium carbonate, zeolite, silica, etc. Suitable biodegradable polymers include polyesters such as aliphatic-aromatic copolyesters such as those described in WO 98/23673. The thermoplastic copolyester may comprise at least one aliphatic dicarboxylic acid such as adipic acid, at least one aliphatic diol such as 1,4-butanediol, and at least one aromatic dicarboxylic acid such as terephthalic acid. The films may be used in diapers, training pants, catamenial pads, and the like. Significantly, however, Wu, et al. fail to disclose or suggest aliphatic-aromatic copolyesters that have a weight average molecular weight of from about 90,000 to about 160,000 Daltons, a number average molecular weight of from about 35,000 to about 70,000 Daltons, and a glass transition temperature of less than about 0°C.

Hale, et al. is directed to multilayer films comprising a layer of a thermoplastic polymer such as an aliphatic-aromatic copolyester (AAPE). The AAPEs may be comprised of diols and diacids. In one preferred embodiment, the AAPE comprises about 30 to about 75 mole % of adipic acid, about 25 to about 70 mole % terephthalic acid, about 90 to 100 mole % 1,4-butanediol, and 0 to about 10 mole % of modifying diol, based on 100 mole

percent of a diacid component and 100 mole percent of a diol component. The AAPE may optionally comprise from about 0.01 to about 10 wt.% of a branching agent, and from 0 to about 80 percent by weight of a filler. The multilayer film in stretched form has a moisture vapor transmission rate of at least 300 g-μm/m^2-hour (or g-mil/m^2-day), and preferably greater than about 500 to about 10,000 g-μm/m^2-hour. The AAPE may be formulated into multilayer films and incorporated into articles such as diapers.

Significantly, Hale, et al. do not disclose a copolyester having applicants' claimed amounts of aromatic dicarboxylic acid, aliphatic dicarboxylic acid, and dihydric alcohol, and that has a weight average molecular weight of from about 90,000 to about 160,000 Daltons, a number average molecular weight of from about 35,000 to about 70,000 Daltons, and a glass transition temperature of less than about 0°C.

In order for the Office to show a *prima facie* case of obviousness, M.P.E.P. §2142 requires a clear articulation of the reasons why the claimed invention would have been obvious. Specifically, the Supreme Court in KSR International Co. v. Teleflex Inc., 550 U.S. ___, ___, 82 USPQ2d 1385, 1396 (2007), 2007 WL 1237837, noted that the burden lies initially with the Office to provide an explicit analysis supporting a rejection under 35 U.S.C. 103. "[R]ejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to

support the legal conclusion of obviousness."[2] The Court in *KSR International* further identified a number of rationales to support a conclusion of obviousness which are consistent with the proper "functional approach" to the determination of obviousness as laid down in Graham v. John Deere Co. (383 U.S. 1, 148 USPQ 459 (1966). Specifically, as previously required by the TSM (teaching, suggestion, motivation) approach to obviousness, one exemplary rationale indicated requires some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

Specifically, to reject a claim based on this rationale, the Office must articulate the following: (1) a finding that there was some teaching, suggestion, or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings to arrive at each and every limitation of the claimed invention; (2) a finding that there was reasonable expectation of success; and (3) whatever additional findings based on the *Graham* factual inquiries may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness. The Office has failed to meet its burden under number (1) above, as the cited references fail to show each and every limitation of Applicants' invention and there is no apparent reason for one skilled in the art to modify the references to arrive at each

[2] *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006).

and every limitation. It simply would not have been obvious to one skilled in the art to arrive at Applicants' claimed combinations.

Specifically, none of the cited references, alone or in combination, teach or suggest an absorbent article comprising a laminated outer cover comprising a biodegradable stretched aliphatic-aromatic copolyester film comprising a copolyester having a weight average molecular weight of from about 90,000 to about 160,000 Daltons, a number average molecular weight of from about 35,000 to about 70,000 Daltons, and a glass transition temperature of less than about 0°C.

The Office has taken the position that the copolyesters described in Wu, et al. inherently have weight average molecular weights, number average molecular weights, and glass transition temperatures that fall within applicants' claimed ranges. The Office bases this position on the statement in Wu, et al. that the polyesters used therein can be aliphatic-aromatic copolyesters as described in Brink (WO 98/23673), and that such copolyester films have a composition substantially identical to that claimed.

Brink is directed to compositions and films comprising thermoplastic elastomers having a moisture vapor transmission rate of at least 200 g mil/m^2 day and microporous inorganic fillers. The compositions preferably comprise from about 15% to about 60% by weight of the microporous inorganic filler. The thermoplastic elastomerics may be polymerization products of at least one aromatic dicarboxylic acid and/or at least one

aliphatic dicarboxylic acid, and at least one diol. The aromatic and/or aliphatic dicarboxylic acids make up 100 mole% of the copolyesters, and the diols make up 100 mole% of the copolyesters, based on a total monomer content of 200 mole%. In one particular embodiment, the copolyesters may be prepared from glutaric acid (30-65 mole%); diglycolic acid (0-10 mole%); terephthalic acid (25-60 mole%); and 1,4-butanediol (100 mole%), based on a total mole% of dicarboxylic acid and diol of 200%.

Significantly, howevever, Brink fails to disclose or suggest aliphatic-aromatic copolyesters that have a weight average molecular weight of from about 90,000 to about 160,000 Daltons, a number average molecular weight of from about 35,000 to about 70,000 Daltons, and a glass transition temperature of less than about 0°C. Thus, neither Wu, et al. nor Brink disclose or suggest copolyesters having number average molecular weights, weight average molecular weights, or glass transition temperatures that fall within applicants' claimed ranges.

Furthermore, applicants disagree with the Office's position that applicants' claimed number average molecular weights, weight average molecular weights, and glass transition temperatures would be inherent in the copolyesters of Wu, et al. and/or Brink, since the composition of the Wu, et al. and/or Brink copolyesters is similar to applicants' claimed copolyesters.

A finding of inherency cannot be based on *mere assumptions* by the Office. Rather, to establish inherency, "the examiner must provide a basis in fact and/or technical reasoning to

reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art."[3] Furthermore, "[t]he fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic."[4]

In the instant case, the Office merely asserts that the copolyesters of Wu, et al. would inherently have applicants' claimed molecular weights and glass transition temperatures because the composition of the Wu, et al. copolyesters (by reference to Brink) is similar to that set forth in applicants' claims. This, however, is insufficient to show that the copolyesters of Wu, et al. inherently (i.e., necessarily) have applicants claimed molecular weights and glass transition temperature. This is especially true given the lack of any disclosure in Brink or Wu, et al. as to the weight average molecular weight, number average molecular weight, or glass transition temperatures of the copolyesters disclosed therein, or any recognition of the effects these properties will have on the films described in Wu, et al.

Furthermore, applicants note that the molecular weight and glass transition temperature of a copolyester is not always correlated with a particular mole% breakdown of the components

[3] MPEP §2112 (citing *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original).
[4] MPEP §2112 (citing *In re Rijckaert*, 9 F.3d 1531, 1534 (Fed. Cir. 1993)). MPEP §2112 also states "[i]nherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." (quoting *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).

of the copolyester. In particular, copolyesters having the same breakdown of components by mole% will not necessarily have the same number average molecular weight, weight average molecular weight, and glass transition temperature. This has been previously discussed and specifically illustrated in the Response After RCE filed on December 28, 2006, to which applicants again refer the Office. Additionally, applicants note that polymer molecules, even those of the same type of polymer, come in different sizes. As such, polymers of the same type of material may in fact have different weight average molecular weights and/or number average molecular weights, depending on the size of the polymer molecules. In support of this, applicants are submitting herewith a reference describing how to calculate weight average molecular weight and number average molecular weight. The reference states that "[p]olymer molecules, even if of the same type, come in different sizes (chain lengths, for linear polymers)." Thus, simply because the copolyesters of Wu, et al. (by reference to Brink) may have a similar breakdown of components by mole% as applicants' copolyester, does not mean the copoyesters of Wu, et al. and/or Brink will have the same weight average molecular weight and/or number average molecular weight as the copolyesters set forth in applicants' claims. Consequently, the copolyesters of Wu, et al. (and/or Brink) cannot be said to inherently have the same number average molecular weight, weight average molecular weight, and glass transition temperature as set forth in applicants' claim 1.

Nor would it be obvious for one skilled in the art to modify the teachings of Wu, et al. (and/or Brink) and Hale, et al. to arrive at a copolyester having applicants' claimed molecular weights and glass transition temperatures. As recognized by the Supreme Court in KSR International Co. v. Teleflex, Inc., while an obviousness determination is not a rigid formula, the TSM (teaching, suggestion, motivation) test captures a helpful insight: "A patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. Although common sense directs [caution as to] a patent application that claims as innovation the combination of two known [elements] according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the [art] to combine the elements in the way the claimed new invention does."[5] More particularly, a court must ask whether the improvement is more than the predictable use of prior-art elements according to their established functions.[6] If a person of ordinary skill in the art can implement a predictable variation, and would see the benefit of doing so, §103 likely bars its patentability. For example, in KSR, the patented invention was directed towards an improved adjustable vehicle pedal assembly, and, as has long been held in the Federal Circuit, mechanical arts are predictable.[7]

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[5] 2007 WL at 5.
[6] *Id.*
[7] *See* MPEP §2164.03 (*citing* In re Vickers, 141 F.2d 522, 526-27, 61 USPQ 122, 127 (CCPA 1944); In re Cook, 439 F.2d 730, 734, 169 USPQ 298, 301 (CCPA 1971)); *See also*, In re Wright, 999 F.2d 1557, 1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993); In re Vaeck, 947 F.2d 488, 496, 20 USPQ2d 1438, 1445 (Fed. Cir. 1991).

Recognizing that mechanical devices such as adjustable vehicle pedals and sensors can be predictably modified and combined by one skilled in the art, the Court invalidated the patent as obvious.[8]

By contrast, areas of chemistry, such as in the instant case of Applicant's aliphatic-aromatic copolyester films, have been held inherently unpredictable. Specifically, as stated in In re Marzocchi,[9] "in the field of chemistry generally, there may be times when the well-known *unpredictability* (emphasis added) of chemical reactions will alone be enough to create a reasonable doubt as to the accuracy of [generalized] broad statements." That is, chemical reactions are, by their nature, unpredictable and, as such, generalized or broadly disclosed elements cannot necessarily be predictably modified. In the instant case, there is simply no apparent reason to modify or combine the cited references to arrive at applicants' claimed absorbent articles.

As noted above, there is no disclosure or suggestion in either of the cited references that the copolyesters disclosed therein could or should have number average molecular weights, weight average molecular weights, and glass transition temperatures within the ranges as set forth in applicants' claims. Nor is there any recognition of the benefits of

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[8] KSR Int'l Co. v. Teleflex, Inc., et al. 550 US____, 2007 WL 1237837 at 17 (2007). Specifically, the Court held that there was convincing evidence that mounting a modular sensor on a fixed pivot point of a pedal was a design step well within the foreseeable grasp of a person or ordinary skill in the relevant art and, as such, the claimed adjustable pedal assembly of claim 4 was obvious.

[9] 439 F.2d 220, 223-24, 169 USPQ 367, 369-70 (CCPA 1971).

copolyesters having the claimed combination of mole% breakdown of components, molecular weights, and glass transition temperature. For instance, applicants note that slight differences in the molecular weight and glass transition temperature may affect properties of the copolyester.[10] Neither Wu, et al. (nor Brink), nor Hale, et al. disclose or suggest that molecular weights or glass transition temperatures of the copolyesters affect the copolyester properties, or that it would be desirable for the copolyesters to have molecular weights and glass transition temperatures within applicants' claimed ranges. As such, there would be no apparent reason for one skilled in the art to modify the teachings of Wu, et al. (with reference to Brink) and Hale, et al. to arrive at applicants' claim 1.

Additionally, applicants respectfully submit that the Office has not presented sufficient reasons why one skilled in the art would modify the teachings of Wu, et al. (and/or Brink) to arrive at a copolyester having applicants claimed molecular weights and glass transition temperatures. Rather, the Office has merely made a general statement that the copolyesters of Wu, et al. inherently have the weight average molecular weights, number average molecular weights, and glass transition temperatures, as set forth in claim 1, because they have a similar composition. This, however, cannot be construed as a statement regarding motivation to modify the cited references. The Office has not provided any reasoning whatsoever as to why one skilled in the art, in the absence of applicants' disclosure as a blueprint, would modify the copolyesters of Wu, et al.

[10] *See, e.g.*, Specification at ¶ 37 and 39.

(and/or Brink) or Hale, et al. to arrive at a copolyester having applicants' claimed weight average molecular weight, number average molecular weight, and glass transition temperature.[11]

Additionally, applicants note, and the Office has admitted, that Wu, et al. alone or by reference to Brink fails to teach a film comprising a polyfunctional branching agent, as required by claim 1. The Office has, however, taken the position that Hale, et al. teach a film formed using a polyfunctional branching agent and since the film of Hale, et al. has a composition that is substantially identical to that taught by Wu, et al. by reference to Brink, it would be obvious to modify the film taught by Wu, et al. to include a polyfunctional branching agent. Applicants respectfully disagree.

Specifically, applicants respectfully submit that contrary to the Office's position, there is no apparent reason for one skilled in the art to modify the film of Wu, et al. to incorporate the polyfunctional branching agent of Hale, et al. In the instant case, the Office has failed to identify a reason

[11] The Office has additionally stated that it would be obvious to modify the article of Wu so as to have a weight average molecular weight, number average molecular weight, and glass transition temperature that fall within the claimed ranges to provide an article that has desired breathability and biodegradability characteristics. However, as noted above, there is nothing in Wu, et al. (with reference to Brink) or Hale, et al. that suggests any benefits to copolyesters having a particular weight average molecular weight, number average molecular weight, or glass transition temperatures, much less that weight average molecular weight, number average molecular weight, or glass transition temperatures have any affect on breathability or biodegradability characteristics. As such, there would be no reason for one skilled in the art to modify weight average molecular weight, number average molecular weight, or glass transition temperatures to affect breathability or biodegradability of the articles of Wu, et al. based on the teachings in the cited references.

why one skilled in the art would incorporate the branching agents disclosed in Hale, et al. into the films of Wu, et al. Rather, the Office has merely stated that the films of Hale, et al. and Wu, et al. are similar, and therefore it would be obvious to modify the film taught by Wu, et al. to include the branching agents disclosed in Hale, et al. Applicants submit, however, that the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. Furthermore, motivation to combine references is not found simply because two references deal with issues in the same general field. In the instant case, there is simply nothing in Wu, et al. (or Brink) to suggest that the films described therein could or should comprise a polyfunctional branching agent. Nor does Hale, et al. disclose or suggest any particular benefit to incorporating a branching agent into the films described therein. There is simply no apparent reason for one skilled in the art to combine the teachings of Wu, et al. and Hale, et al., as suggested by the Office.

In light of the foregoing discussion, applicants submit that one skilled in the art would not be motivated to modify the Wu, et al. (and/or Brink) reference to arrive at the absorbent article set forth in applicants' claim 1. In particular, neither Wu, et al., Brink, or Hale, et al. disclose or suggest the desirability of a copolyester film comprising a polyfunctional branching agent and an aromatic dicarboxylic acid, aliphatic dicarboxylic acid, and dihydric alcohol in applicants' claimed mole% that also has a weight average

molecular weight of from about 90,000 to about 160,000 Daltons and a number average molecular weight of from about 35,000 to about 70,000 Daltons and that has a glass transition temperature of less than about 0°C.

Applicants thus submit that claim 1 is patentable over the cited references. Claims 2-15 and 17-53 depend directly or indirectly from claim 1 and are thus patentable for the same reasons as set forth above for claim 1 as well as for the additional elements they require.

Additionally, with regard to claims 21 and 22, the Office has stated that the thickness of the films disclosed in Wu, et al. is between 0.25 and 10 mils, which is about 6.35-254 micrometers. Applicants respectfully disagree with the Office's calculations. Rather, applicants submit that 0.25 to 10 mils is about 250 to 10,000 micrometers. Thus, Wu, et al. are clearly teaching films that have thicknesses greater than those set forth in claims 21 and 22. Claims 21-22 are thus patentable over the cited references for this additional reason.

Additionally, with regard to dependent claims 33-36, 41-46, and 50-52, the Office has stated that properties such as hydrostatic pressure resistance (claims 33-36), modulus of elasticity (claims 41-43), % strain in the machine direction (claims 44-46), and break stress (claims 50-52) are inherent properties of the films of Wu, et al., based on the disclosure of Brink. Applicants respectfully disagree.

Initially, it should be recognized that properties such as hydrostatic pressure resistance, modulus of elasticity, % strain in the machine direction, and break stress are not determined solely by the mole % breakdown of aliphatic dicarboxylic acids, aromatic dicarboxylic acids, and dihydric alcohols in the copolyester. Rather, these properties are affected not only by mole% breakdown of components but also by factors such as the size and amount of filler particles in the film, the number average molecular weight of the copolyester, the weight average molecular weight of the copolyester, and the glass transition temperature of the copolyester. For instance, ¶37 of the specification states that weight average molecular weight and number average molecular weight have an effect on the tensile strength of copolylesters. In particular, if the molecular weight numbers are too small, the copolyester will be too tacky and have too low of a tensile strength. If the molecular weight numbers are too high, various processing issues are encountered. Additionally, as described in ¶39 of the specification, the glass transition temperature of the copolyester affects the flexibility characteristics of the copolyesters.

As further support for this, applicants refer to the Examples of the present invention. In particular, the examples describe the preparation of stretched aliphatic-aromatic copolyester films using two commercially available aliphatic-aromatic copolyester resins as starting materials (i.e., Ecoflex F BX 7011 aliphatic-aromatic copolyester and EnPol G8060 M

aliphatic-aromatic copolyester).[12] The films prepared using the Ecoflex and EnPol resins both had mole% breakdown of components that fell within the ranges set forth in applicants claim 1. Stretched films prepared using various amounts of filler particles were then tested for hydrostatic pressure resistance (Example 4), water vapor transmission rates (Example 5), and tensile strengths (e.g., % strain in the machine direction and % strain in the cross direction) (Example 6).

As can be seen from the results of these tests, the various stretched films prepared with the Ecoflex or EnPol resins did not have the same hydrostatic pressure resistance, water vapor transmission rate, and tensile strength measurements, despite all having a mole% breakdown of components that fell within the ranges set forth in claim 1, thus illustrating that copolyesters that have a mole% breakdown of components that fall within the ranges set forth in claim 1 will not inherently have the same values for these properties. Consequently, it cannot be assumed that the films of Wu, et al. (and/or Brink) or Hale, et al. will inherently have the same hydrostatic pressure resistance, modulus of elasticity, % strain in the machine direction, and break stress, simply because they have similar mole % breakdown of aliphatic dicarboxylic acids, aromatic dicarboxylic acids, and dihydric alcohols, as set forth in applicants' claims.

Claims 33-36, 41-46, and 50-52 are thus patentable over the cited references for this additional reason.

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[12] Example 1 describes preparation of precursor films, and Example 3 describes stretching the films of Example 1.

Additionally, with regard to claims 44-46, applicants note that the Examples of Wu, et al. give a percent machine direction elongation at break for the films tested therein. In particular, the values given in the table on page 19 are well above the values set forth in applicants' claims 44-46. Claims 44-46 are thus patentable for this additional reason.

Claim 54 is directed to an absorbent article comprising a laminated outer cover, the laminated outer cover comprising a biodegradable stretched aliphatic-aromatic copolyester film. The film comprises filler particles, a polyfunctional branching agent, and a copolyester comprising from about 10 mole% to about 30 mole% terephthalic acid, from about 20 mole% to about 40 mole% adipic acid, from about 30 mole% to about 60 mole% 1,4-butanediol, and wherein the copolyester has a weight average molecular weight of from about 90,000 to about 160,000 Daltons and a number average molecular weight of from about 35,000 to about 70,000 Daltons, and wherein the glass transition temperature of the copolyester is less that about 0°C.

Claim 54 is patentable for the same reasons as set forth above for claim 1. Claims 55-57 depend directly or indirectly from claim 54 and are thus patentable for the same reasons as set forth above for claim 54 as well as for the additional elements they require.

CONCLUSION

In light of the foregoing, applicants request reconsideration of the rejection of claims 1-15 and 17-57 and allowance of all pending claims. The Commissioner is hereby authorized to charge any fees which may be required to Deposit Account No. 01-2384.

Respectfully submitted,

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